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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,723	09/26/2005	Seung Sik Cha	2017-028	5510
52706	7590	09/30/2008		
IPLA P.A. 3580 WILSHIRE BLVD. 17TH FLOOR LOS ANGELES, CA 90010			EXAMINER MERKLING, MATTHEW J	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 09/30/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/550,723	Applicant(s) CHA ET AL.	
	Examiner MATTHEW J. MERKLING	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 14-16, 22-24 and 26 is/are rejected.
- 7) ☒ Claim(s) 7-13, 17-21 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/26/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14-16 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "both wings" in line 4. There is insufficient antecedent basis for this limitation in the claim. It is unclear where the claimed "both wings" are located.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6, 23, 24 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Strizki et al. (US 6,939,529).

Regarding claim 1, Strizki discloses a self-regulating hydrogen gas generator (see abstract), for a hydrogen fuel cell, comprising:

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a fuel tank (102), defining an inner space having a designated volume, provided with a hydrogen outlet (111) communicating the inner space;

a fuel solution (col. 2 lines 36-40), containing a hydrogen storing material (fuel solution), stored in the fuel tank; and

a catalyst (107) contacting the fuel solution for generating hydrogen gas, wherein the catalyst fills a catalytic reactor (catalyst chamber depicted in Fig. 1), provided with a closed portion ('hood' 101 as depicted in Fig. 1) for interrupting the contact between the catalyst and the fuel solution to stop the generation of hydrogen gas in case that a pressure of the fuel tank increases due to the generation of hydrogen gas by the contact between the catalyst and the fuel solution, and an opened portion contacting the fuel solution for generating hydrogen gas in case that the pressure of the fuel tank decreases due to the use of the generated hydrogen gas by the fuel cell, so that the generation and interruption of hydrogen gas are actively regulated based on the increase and decrease of the pressure of the fuel tank (col. 4 lines 30-45).

Regarding claims 2, 23 and 24, Strizki further discloses the catalytic reactor includes elastic means (spring) having a designated compressing and restoring force (inherently) for moving the catalyst toward the closed or opened portion, based on the increase and decrease of the pressure of the fuel tank due to the generation of hydrogen gas, to regulate the generation of hydrogen gas (col. 4 line 61 - col. 5 line 1).

Regarding claim 3, Strizki further discloses a catalyst-fixing member (catalyst chamber 107), provided with the catalyst connected thereto, which is movable in the

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catalytic reactor (see Fig. 1), is connected to one end of the elastic means (see Fig. 1 where the catalyst chamber is connected to the end of the spring actuator 109).

Regarding claim 26, Strizki further discloses a heating medium (105) for generating heat is installed in at least one of the fuel tank (col. 2 lines 53-58), the catalytic reactor and the catalyst-fixing member.

Regarding claim 6, Strizki further discloses the fuel tank includes gas-liquid separating means for separating the generated hydrogen gas from the fuel Solution in a liquid state and exhausting the separated hydrogen gas to the outside (see Fig. 1 where gas and liquid are separated at the top of the fuel tank).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strizki et al. (US 6,939,529) in view of Caudy et al. (US 4,404,170).

Regarding claims 4 and 5, Strizki teaches an interception member (the mechanism that removes the catalyst 301 or 401 from the fuel solution) for preventing the fuel solution from being introduced into the catalytic reactor through the opened portion when the catalyst-fixing member moves toward the closed portion due to the increase of the pressure of the fuel tank (col. 4 lines 30-45).

Strizki, however, fails to teach the interception member positioned between the catalyst fixing member and the elastic means or the catalytic reactor.

Caudy also discloses an apparatus in which a catalytic reagent is brought into contact with a fuel solution in order to generate hydrogen (see abstract).

Caudy teaches a means of moving the catalyst (28) in and out of contact with a fuel solution (24) similar to Strizki. Caudy, however teaches a slightly different method and apparatus to do this. Caudy teaches a elastic means/control rod which can be shut off from the fuel solution by an interception member 44 which, at the closed position is located at the catalytic reactor (30) and is between the catalyst fixing member (36) and the elastic means/control rod (32). Caudy teaches this system of moving a catalyst in and out of contact with a fuel solution in order to provide a means which is easily controlled and can provide nearly instantaneous commencement or termination of hydrogen gas (col. 1 lines 54-65).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to position the catalyst and interception means of Strizki in a manner where the interception member is positioned between the catalyst fixing member and the elastic means or the catalytic reactor, as taught by Caudy, in order to provide a known means to control, start and stop the generation of hydrogen within a fuel solution chamber.

Allowable Subject Matter

7. Claims 7-13, 17-21 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 7 claims an installation groove which the catalytic reactor is detachably inserted from the fuel tank. While the prior art teaches several 'cartridges' containing hydrogen generating means that are detachable from a port (see US 2003/0138679, for example), the prior art does not teach or suggest an elastic means for pushing the catalyst-fixing member of the catalytic reactor due to the increase of the pressure of the fuel tank as well as a through hole sealing member which is combined with the elastic means and can seal the through hole when the catalytic reactor is detached.

Claim 13 claims a collector floating on the fuel solution. The prior art neither teaches nor suggests a self regulating hydrogen generator which comprises a collector which floats on the fuel solution and is configured such that a collector hole is exposed to the surface of the fuel solution and a drain hole connecting the other side of the connector for exhausting a fluid.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795